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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/059,726
Filing Date: January 29, 2002
Appellant(s): CHANDHOKE ET AL.

Jeffery C. Hood
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 9/6/2007 appealing from the Office action mailed 3/9/2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

Compumotor, Motion Builder Start-Up Guide and Tutorial, Parker Hannifin Corporation, October 1996, pages 1-98

6298474	Blowers et al	10-2001
20020067373	Roe et al	05-2002

5781505 Rowland

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5,7,9,10,17-34,39-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Compumotor ("Compumotor", Motion Builder Start-up Guide and Tutorial) in view of Rowland ("Rowland", US 5,781,505).

As per independent claim 1, Compumotor teaches a computer-implemented method for previewing two or more motion control operations, the method comprising: receiving user input selecting the two or more motion control operations, wherein the motion control operations are operable to perform motion control of a hardware device (Page 6 lines 2-8); storing information representing the two or more motion control operations (page 6 lines 5-6); displaying a first preview window for previewing the motion control performed by the two or more motion control operations (Page 87, Figure 87.1); and displaying information in the first preview window which visually indicates the motion control performed by the two or more motion control operations (Page 87, Figure 87.1). Compumotor fails to distinctly point out visually indicating a spatial trajectory

performed by the two or more motion control operations. However, Rowland teaches previewing spatial trajectory for a projectile from a viewpoint of an observer (Column 1 lines 60-67). Therefore it would have been obvious to an artisan at the time of the invention to combine the motion control operations of Compumotor and the spatial trajectory preview of Rowland. Motivation to do so would have been to calculate an accurate range, motion, and speed of the trajectory.

As per claim 2, which is dependent on claim 1, Compumotor-Rowland teaches a method further comprising: receiving user input to the first preview window to graphically change the cumulative motion control performed by the two or more motion control operations (Compumotor, Page 6 lines 1-10); changing one or more of the motion control operations in order to change the cumulative motion control performed by the motion control operations in accordance with the user input (Compumotor, Page 6 lines 12-22); and updating the displayed spatial trajectory in the first preview window in order to visually indicate the changed cumulative motion control performed by the motion control operations in accordance with the user input (Rowland, Figure 4a; Dynamic Update); wherein said changing one or more of the motion control operations comprises changing the stored information (Compumotor , Page 6 lines 5-6).

As per claim 3, which is dependent on claim 1, Compumotor-Rowland teaches a method wherein the first preview window comprises a window for previewing a velocity profile for the two or more motion control operations (Compumotor, Page 80 lines 1-2); wherein the method further comprises displaying velocity information in the first preview

window for at least a portion of the motion control performed by the two or more motion control operations (Compumotor, Page 80, Figure 80.1).

As per claim 4, which is dependent on claim 1, Compumotor-Rowland teaches a method wherein the first preview window comprises a window for previewing an acceleration profile for the two or more motion control operations (Compumotor, Page 80 lines 1-2); wherein the method further comprises displaying acceleration information in the first preview window for at least a portion of the motion control performed by the two or more motion control operations (Compumotor, Page 80, Figure 80.1).

As per claim 5 which is dependent on claim 1, Compumotor-Rowland teaches a method wherein the first preview window comprises a window for previewing position data for the two or more motion control operations in a two-dimensional view (Compumotor, Page 80 lines 14-15); wherein said visually indicating the spatial trajectory cumulatively performed by the two or more motion control operations comprises plotting two-dimensional position data in the first preview window to visually indicate at least a portion of the motion control performed by the two or more motion control operations in a two-dimensional view (Rowland, Column 1 lines 60-67, Compumotor , Page 80, Figure 80.1).

As per claim 7, which is dependent on claim 1, Compumotor-Rowland teaches a method further comprising: dynamically updating the first preview window in response to selecting each of the two or more motion control operations to visually indicate the effect of selecting each operation (Compumotor ,Page 80, Figure 80.1 recalculate); wherein for each selected motion control operation, dynamically updating the first

preview window in response to selecting the motion control operation comprises dynamically updating the displayed spatial trajectory to indicate a change in the cumulative motion control, wherein the change is caused by the selected motion control operation (Rowland, Figure 4a; Dynamic Update) .

As per claim 9, which is dependent on claim 1, Compumotor-Rowland teaches a method further comprising: receiving user input to configure one or more breakpoint operations to be performed in one or more of the motion control operations (Page 44); and displaying information in the first preview window which visually indicates the one or more breakpoint operations (Compumotor ,Page 87, Figure 87.1).

As per claim 10, which is dependent on claim 1, Compumotor-Rowland teaches a method wherein said displaying information in the first preview window which visually indicates cumulative motion control performed by the two or more motion control operations comprises displaying information which visually indicates only a portion of the entire cumulative motion control performed by the two or more motion control operations (Compumotor ,Page 87 Figure 87.1;wherein a portion of the motion control is shown).

As per claim 17, which is dependent on claim 1, Compumotor-Rowland teaches a method wherein said receiving user input selecting the two or more motion control operations does not include receiving user input specifying programming language code to implement the two or more motion control operations (Compumotor ,Page 6 lines 1-25).

As per claim 18, which is dependent on claim 1, Compumotor-Rowland teaches a method further comprising: displaying a graphical user interface (GUI) that provides GUI access to a set of motion control operations; wherein said receiving user input selecting the two or more motion control operations comprises receiving user input to the graphical user interface selecting the two or more motion control operations (Compumotor ,Page 6 lines 1-25).

As per claim 19, which is dependent on claim 18, Compumotor-Rowland teaches a method further comprising: receiving user input to the graphical user interface for configuring one or more of the selected motion control operations, wherein, for each of the one or motion control operations that are configured via user input to the graphical user interface, said configuring the motion control operation affects motion control which the motion control operation is operable to perform (Compumotor ,Page 80, Figure 80.1), wherein the method further comprises: for each of the one or more motion control operations that are configured via user input to the graphical user interface, updating the displayed spatial trajectory in response to configuring the motion control operation in order to indicate a change in the cumulative motion control caused by configuring the motion control operation (Rowland, Figure 4a, Column 1 lines 60-67).

As per claim 20, which is dependent on claim 19, Compumotor-Rowland teaches a method wherein said receiving user input to the graphical user interface for configuring one or more of the selected operations does not include receiving user input specifying programming language code to configure the operations (Compumotor , Page 80, Figure 80.1, lines 8-13).

As per claim 21, which is dependent on claim 19, Compumotor-Rowland teaches a method further comprising: for each operation to be configured, displaying a graphical panel including graphical user interface elements for setting properties of the operation and receiving user input to the graphical panel to set one or more properties of the operation (Compumotor , Page 80, Figure 80.1, lines 8-13).

As per claim 22, which is dependent on claim 1, Compumotor-Rowland teaches a method. wherein said storing information representing the two or more motion control operations comprises storing a motion control sequence comprising the two or more motion control operations (Compumotor , Page 6 lines 5-6).

As per claim 23, which is dependent on claim 1, Compumotor-Rowland teaches a method wherein said storing information regarding the two or more motion control operations comprises storing a prototype comprising the two or more motion control operations (Compumotor , Page 6 lines 5-6).

As per claim 24, which is dependent on claim 1, Compumotor-Rowland teaches a method wherein said storing information regarding the two or more motion control operations comprises creating program instructions for implementing the two or more motion control operations (Compumotor , Page 90 lines 16-18, page 91 lines 1-2 Figure 90.1).

As per claim 25, which is dependent on claim 24, Compumotor-Rowland teaches a method wherein said creating program instructions for implementing the two or more motion control operations comprises programmatically generating at least a portion of a graphical program; wherein the graphical program includes a plurality of interconnected

nodes that visually indicate functionality of the graphical program (Compumotor , Page 87, Figure 87.1).

As per claim 26, which is dependent on claim 25, Compumotor-Rowland teaches a method wherein said programmatically generating the at least a portion of the graphical program comprises including one or more nodes in the graphical program operable to implement the two or more motion control operations (Compumotor , Page 87, Figure 87.1).

As per claim 27, which is dependent on claim 25, Compumotor-Rowland teaches a method further comprising: executing the graphical program to perform the two or more motion control operations (Compumotor, Page 17 lines 15-16).

As per claim 28, which is dependent on claim 25, Compumotor-Rowland teaches a method wherein the graphical program is a graphical data flow program (Compumotor, Page 6 lines 1-10).

As per claim 29, which is dependent on claim 24, Compumotor-Rowland teaches a method wherein said creating program instructions for implementing the two or more motion control operations comprises generating at least a portion of a text-based program (Compumotor, Page 90 lines 16-18, Page 91 lines 1-2, Figure 90.1); wherein said generating the at least a portion of the text-based program includes generating a plurality of function calls operable to implement the two or more motion control operations (Figure 90.1).

As per claim 30, which is dependent on claim 24, Compumotor-Rowland teaches a method, further comprising: displaying the created program instructions in a second window (Compumotor, Figure 90.1).

As per claim 31, which is dependent on claim 30, Compumotor-Rowland teaches a method, further comprising: receiving user input to the first preview window to visually change the motion control performed by the two or more motion control operations; changing the program instructions to implement the new motion control performed by the two or more motion control operations; and updating the second window to display the changed program instructions (Compumotor, page 90, figure 90.1).

Claims 32,43,45-46 are similar in scope to that of claim 1 and are therefore rejected under similar rationale.

Claims 33 and 44 are similar in scope to that of claim 2 and are therefore rejected under similar rationale.

As per claim 34, which is dependent on claim 32, Compumotor-Rowland teaches a method wherein said creating the sequence of motion control operations comprises receiving user input requesting to add each operation to the sequence; wherein the method further comprises dynamically updating the first preview window in response to each operation added to the sequence to visually indicate the effect of adding the operation (Compumotor, Page 6 lines 1-25).

Claim 39 is similar in scope to that of claim 17 and is therefore rejected under similar rationale.

Claim 40 is similar in scope to that of claim 18 and is therefore rejected under similar rationale.

Claim 41 is similar in scope to that of claim 20 and is therefore rejected under similar rationale.

Claim 42 is similar in scope to that of claim 21 and is therefore rejected under similar rationale.

As per claim 47, which is dependent on claim 1, Compumotor-Rowland teaches a method wherein said visually indicating the spatial trajectory cumulatively performed by the two or more motion control operations comprises displaying an animation of the spatial trajectory Rowland, Figure 4a).

As per claim 48, which is dependent on claim 1, Compumotor-Rowland teaches a method wherein said visually indicating the spatial trajectory cumulatively performed by the two or more motion control operations comprises displaying a graph with tow or more spatial axes, wherein the spatial trajectory is displayed on the graph (Compumotor, Page 80 Figure 80.1).

As per claim 49, which is dependent on claim 2, Compumotor-Rowland teaches a method wherein said receiving user input to the first preview window to graphically change the cumulative motion control performed by the tow or more motion control operations comprises receiving user input to the displayed spatial trajectory to graphically change the cumulative motion control performed by the two or more motion control operations (Compumotor, Page 80); wherein the one or more motion control

operations are changed in response to the user input to the displayed spatial trajectory (Compumotor, Page 80).

1. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Compumotor ("Compumotor", Motion Builder Start-up Guide and Tutorial) in view of Rowland ("Rowland", US 5,781,505).

As per claim 13, which is dependent on claim 1, Compumotor-Rowland fails to distinctly point out scaling a window to a certain size. However, Official Notice is taken that window scaling is notoriously well known in the art. Many programs employ a scaling function by clicking and dragging the corner of a window in order to reduce or enlarge the window, which in turn reduces the information in the window. Therefore it would have been obvious to an artisan at the time of the invention to combine the current teaching with the method of Compumotor-Rowland. Motivation to do so would have been to provide a way for a user to utilize the display area by maximizing the amount of windows shown on the screen.

2. Claims 6,14-16,36-38, are rejected under 35 U.S.C. 103(a) as being unpatentable over Compumotor ("Compumotor", Motion Builder Start-up Guide and Tutorial) and Rowland ("Rowland", US 5,781,505) in view of Roe et al ("Roe", US 2002/0067373).

As per claim 6, which is dependent on claim 1, Compumotor-Rowland teaches position data for the two or more motion control operations (Page 80 lines 14-15). Compumotor-Rowland fails to distinctly point out a three dimensional view. However, Roe teaches a method for showing a motion control in a three dimensional view ([0083] lines 1-17). Therefore it would have been obvious to an artisan at the time of the invention to combine the teaching of Roe into the method of Compumotor-Rowland. Motivation to do so would have been to provide a more detailed perspective of a motion control.

As per claim 14 which is dependent on claim 1, Compumotor-Rowland -Roe teaches a method wherein said displaying information in the first preview window comprises displaying first information which visually indicates a first view of the cumulative motion control performed by the two or more motion control operations (Compumotor, Page 87 figure 87.1); wherein the first view displays a first view of the spatial trajectory cumulatively performed by the two or more motion control operations (Rowland, Column 1 lines 60-67) wherein the method further comprises: displaying a second preview window for previewing the motion control performed by the two or more motion control operations; and displaying second information in the second preview window which visually indicates a second view of the motion control performed by the two or more motion control operations (Roe, [0083] lines 1-17), wherein the second view displays a second view of the spatial trajectory cumulatively performed by the two or more motion control operations (Rowland, Column 1 lines 60-67).

As per claim 15, which is dependent on claim 1, Compumotor-Rowland -Roe teaches a method wherein said displaying the first view of the spatial trajectory cumulatively performed by the two or more motion control operations comprises displaying two-dimensional position information visually indicating a two dimensional view of at least a portion of the spatial trajectory (Compumotor, Page 80 lines 14-15, Rowland, Column 1 lines 60-67); wherein said displaying the second view of the spatial trajectory cumulatively performed by the two or more motion control operations comprises displaying two-dimensional position information visually indicating a three dimensional view of at least a portion of the spatial trajectory (Compumotor, Page 80 lines 14-15, Rowland, Column 1 lines 60-67, Roes, [0083] lines 1-17) .

As per claim 16, which is dependent on claim 14, Compumotor-Rowland -Roe teaches a method wherein said visually indicating spatial trajectory cumulatively performed by the two or more motion control operations comprises visually indicating a two-dimensional view of at least a portion of the spatial trajectory (Rowland, Column 1 lines 60-67); wherein the method further comprises displaying velocity information regarding the cumulative the motion control performed by the two or more motion control operations (Compumotor, Page 80 lines 14-15, Roes, [0083] lines 1-17).

Claim 36 is similar in scope to that of claim 14 and is therefore rejected under similar rationale.

Claim 37 is similar in scope to that of claim 15 and is therefore rejected under similar rationale.

Claim 38 is similar in scope to that of claim 16 and is therefore rejected under similar rationale.

3. Claims 8,11-12,35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Compumotor ("Compumotor", Motion Builder Start-up Guide and Tutorial) and Rowland ("Rowland", US 5,781,505) in view of Blowers et al ("Blowers", US 6298474).

As per claim 8, which is dependent on claim 1, Compumotor-Rowland fails to distinctly point out a method, which includes a capture operation. However, Blowers teaches a capture operation (Figure 2) to be performed in one or more of the motion control operations; displaying information in the first preview window which visually indicates the one or more capture operations (Compumotor, Page 80, figure 80.1). Therefore it would have been obvious to an artisan at the time of the invention to combine the teaching of Blowers with the method of Compumotor-Rowland. Motivation to do so would have been to provide a way to slow the sequence down in order to allow the user to visualize the sequence without missing anything.

As per claim 11, Compumotor-Rowland -Blowers teaches a method wherein said visually indicating the spatial trajectory cumulatively performed by the two or more motion control operations comprises interactively tracing the spatial trajectory performed by the two or more motion control operations (Blowers, Column 12 lines 57-60).

As per claim 12, which is dependent on claim 11, Compumotor-Rowland - Blowers teaches a method further comprising: receiving user input specifying rate

information regarding a desired rate at which to trace the trajectory; and interactively tracing the trajectory performed by the two or more motion control operations at a rate in accordance with the specified rate information (Blowers, Column 12 lines 57-60).

Claim 35 is similar in scope to that of claim 11 and is therefore rejected under similar rationale.

(10) Response to Argument

With respect to claims 1,32,43,45,46:

In response to Appellant's argument that Rowland is nonanalogous art when combined with Compumotor, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). The Examiner agrees that Rowland is unrelated to the field of motion control and does not even teach a concept of motion control operation to perform motion control of a hardware device. However in this case, Rowland is reasonably pertinent to the particular problem of plotting spatial trajectories. The Rowland reference has been known in the art for quite some time as a tracking system and dynamic processor to display updated trajectory movement. Rowland should not be limited to projectile trajectories, but should be thought of as improvement and a general teaching of calculating and plotting trajectories.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, there would have been obvious reason to make an adaptation to the invention by applying prior knowledge in a predictable manner. It would have been obvious to one of ordinary skill in the art to plot the trajectory motion operations of Compumotors with the dynamic tracking and plotting system of Rowland, in order to gain the commonly understood benefits of precision, simplified operation, and adaptability. KSR forecloses the argument that a specific teaching, suggestion, or motivation is required to support a finding of obviousness.

With respect to claims 2-31,33-42,44-44,47-49, the Appellant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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